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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,698	03/10/2004	Lior Levy	P18439	6162

46915 7590 12/18/2007

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EXAMINER	
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ART UNIT	PAPER NUMBER
4121	

MAIL DATE	DELIVERY MODE
12/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/798,698	LEVY ET AL.	
	Examiner	Art Unit	
	KEVIN S. MAI	4121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/03/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 27 have been examined and are pending.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 20 – 27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. These claims all refer to articles of manufacture, which are clarified in paragraph [0016] to include transmission media such as network transmission lines, wireless transmission media, signals propagating through space, radio waves, infrared signals, etc. Transmission media are considered non-statutory subject matter.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 – 3, 5, 7 – 11, 13, 15 – 22, 24, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6393483 B1 to Latif et al. (hereinafter "Latif"), and further in view of U.S. Pub. No. 2002/0004912 A1 to Fung (hereinafter "Fung").

As to Claim 1, Latif teaches **a method, comprising:**

managing transmission of data through a plurality of adaptors connected to switches (Fig. 2 of Latif discloses two multi-port NICs (network interface cards) each connected to a different network. Then in Fig. 3 it is disclosed that the multi-port NICs are connected to a switch which in turn connects them to their hosts. Thus the two multi-port NICs are read to be a plurality of adaptors connected to switches)**;**

Latif further teaches **sending through the adaptors at least one query to the switches connected to the adaptor to determine a status of external ports in each queried switch communicating with a network** (Column 13 lines 43 – 55 of Latif disclose an LCT (Link Check Timer) routine that is used to examine each port to ascertain whether it is active or inactive. Also in column 11 lines 1 – 20 of Latif it is disclosed that a PRT (Port Resolution Table) timer routine scans all indices of the table and the associated connected to hosts to see if they are or are not actively transmitting data. It is noted that Latif discloses this in reference to ports on the NICs and not the switches as claimed.

However Fung teaches (paragraph [0141]) a management module for switch management. This module is stated to be responsible for control and status reporting of the switches and it does so by utilizing SNMP. Thus although Latif does not disclose querying to switches it is seen in Fung that such an idea existed and thus applying Latif's specific method to the status reporting disclosed in Fung would be obvious)**; and**

in response to determining from the at least one query that no external ports are operational in one non-operational switch, indicating not to transmit data to the adaptor connected to the non-operational switch (Column 14 lines 60 – 65 of Latif disclose that when port P1 fails for any reason, the smart NIC driver will look to the next active port and assign the functions to that port. Thus it is seen that when it is indicated that one port is inactive its responsibilities are given to another port and information is not sent through that port until it is active again)**.**

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine actively querying the NICs and status/failure management as taught by Latif, with the status management system of the switches as taught by Fung.

One of ordinary skill in the art at the time the invention was made would have been motivated to combine in order to apply the same fail-over technology used in NICs to switches. Since the idea of switch status management is already taught in Fung it would be the next logical step to apply the active querying/fail-over management taught by Latif to further improve network reliability. Since Latif's system would appear only able to detect failures on one side of the switch it would be beneficial to be able to detect failures on either side.

"Common sense teaches, however, that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle...When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." See KSR v. Teleflex, 550 U.S. ___, 127 S. Ct. 1727 (2007).

As to Claim 2, Latif and Fung teach **the method of claim 1, further comprising:**

maintaining a switch map including information associating the adaptors with the switch to which the adaptors connect and a status of the external ports on the switches (Figure 7B of Latif discloses a Port Resolution Table (switch map) that contains port numbers and destination addresses (read to be the adaptors and switches) and a timer field which indicates the status of the connections)**; and**

updating the status of the external ports to the status determined from the at least one query (Column 11 lines 1 – 20 of Latif disclose that after the initial scan if the timer field is set to '1' it will be changed to '0' and then later it will again scan all indices and similarly update the timer field)**.**

As to Claim 3, Latif and Fung teach **the method of claim 1, further comprising:**

indicating to transmit data to one adaptor connected to one switch having at least one operational external port in response to determining from the at least one query that at least one external port in the switch is operational when the switch was previously indicated as non-operational (Column 7 lines 30 – 45 of Latif disclose that during the LCT routine, if the primary Rx comes up from it's failed state, the NIC driver will perform logical operations to ascertain whether it is proper to re-assigned the

receiving tasks to the primary Rx port. Thus according to the routine the status is checked and if it has returned from being non-operational it is cleared for data transfer).

As to Claim 5, Latif and Fung teach **the method of claim 1, wherein the adaptors are managed as a team and wherein load balancing operations are performed when transmitting data through the adaptors** (Column 2 lines 40 – 45 of Latif disclose providing a method for increasing throughput in a load balancing manner over a multi-port NIC).

As to Claim 7, Latif and Fung teach **the method of claim 1, wherein the operations of managing the transmissions of data, sending the at least one query and indicating not to transmit data to one adaptor is performed by an intermediate device driver executing in a server in communication with adaptor device drivers** (Column 4 lines 65 – 67 and Column 5 lines 1 – 10 of Latif disclose that the smart NIC driver is used to manage loads over the multi port NIC. Then in column 7 lines 35 – 40 of Latif it is disclosed that the smart NIC driver is set to perform a LCT routine which is used to check inactivity. Finally in column 11 lines 5 – 20 of Latif it is disclosed that the PRT routine is also controlled by the smart NIC driver. Thus it is seen that the smart NIC driver describes is responsible for managing data transmission, querying the switches, and indicating not to transmit data. It is seen that because the smart NIC driver is also the adaptor device driver that it is in communication with itself and thus is seen to be the same as the applicant's invention) **wherein each switch and the server are**

implemented on different printed circuit boards (Figs. 1 and 2 of Fung disclose a system with individual servers and switches)**, and wherein the server and switch printed circuit board are in a chassis** (Figs. 1 and 2 of Fung further disclose those servers and switches being in a chassis)**.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of claim 1 taught by Latif and Fung, with implementing the switch and servers on printed circuit boards in a chassis as taught by Fung.
One of ordinary skill in the art at the time the invention was made would have been motivated to combine in order to have the servers and switches be implemented in such a fashion that they take up less space and are faster and more reliable than other methods. The advantages of using PCBs to implement various electronics is well known and well documented and as such would be an obvious step in implementing the servers and switches.
"Common sense teaches, however, that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle...When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." See KSR v. Teleflex, 550 U.S. ___, 127 S. Ct. 1727 (2007).

As to Claim 8, Latif and Fung teach **the method of claim 1, wherein the at least one query comprises an SNMP query of the external port link status** (Paragraph [0141] of Fung discloses a system where SNMP message are utilized for status reporting of switches)**.**

As to Claim 9, Latif and Fung teach **a system in communication with at least one switch, wherein the switch communicates with a network, comprising:**

a plurality of adaptors connected to the at least one switch (Fig. 2 of Latif discloses two multi-port NICs (network interface cards) each connected to a different network. Then in Fig. 3 it is disclosed that the multi-port NICs are connected to a switch which in turn connects them to their hosts. Thus the two multi-port NICs are read to be a plurality of adaptors connected to switches)**;**

circuitry capable of causing operations, the operations comprising:

(i) managing transmission of data through the adaptors (Column 5 lines 40 – 55 of Latif disclose a smart NIC driver that controls each port of the multi-port NIC. This is seen to be managing the transmission of data through the adaptors since the multiple ports on the NIC are seen to be independent instances of NICs)**;**

(ii) Latif further teaches **sending through the adaptors at least one query to the switches connected to the adaptor to determine a status of external ports in each queried switch communicating with the network** (Column 13 lines 43 – 55 of Latif disclose an LCT (Link Check Timer) routine that is used to examine each port to ascertain whether it is active or inactive. Also in column 11 lines 1 – 20 of Latif it is disclosed that a PRT (Port Resolution Table) timer routine scans all indices of the table and the associated connected to hosts to see if they are or are not actively transmitting data. It is noted that Latif discloses this in reference to ports on the NICs and not the switches as claimed .

However Fung teaches in paragraph [0141] a management module for switch management. This module is stated to be responsible for control and status reporting of the switches and it does so by utilizing SNMP. Thus although Latif does not disclose querying to switches it is seen in Fung that such an idea existed and thus applying Latif's specific method to the status reporting disclosed in Fung would be obvious)**; and**

(iii) in response to determining from the at least one query that no external ports are operational in one non-operational switch, then indicating not to transmit data to the adaptor connected to the non-operational switch (Column 14 lines 60 – 65 of Latif disclose that when port P1 fails for any reason, the smart NIC driver will look to the next active port and assign the functions to that port. Thus it is seen that when it is indicated that one port is inactive its

responsibilities are given to another port and information is not sent through that port until it is active again).

Examiner supplies the same rationale to combine the references used in claim 1 above.

As to Claim 10, Latif and Fung teach **the system of claim 9, further comprising:**

a switch map including information associating the adaptors with the switch to which the adaptors connect and a status of the external ports on the switches (Figure 7B of Latif discloses a Port Resolution Table (switch map) that contains port numbers and destination addresses (read to be the adaptors and switches) and a timer field which indicates the status of the connections)**, wherein the operations performed by the circuitry are further capable of updating the status of the external ports to the status determined from the at least one query** (Column 11 lines 1 – 20 of Latif disclose that after the initial scan if the timer field is set to '1' it will be changed to '0' and then later it will again scan all indices and similarly update the timer field).

As to Claim 11, Latif and Fung teach **the system of claim 9, wherein the operations performed by the circuitry are further capable of:**

indicating to transmit data to one adaptor connected to one switch having at least one operational external port in response to determining from the at least one query that at least one external port in the switch is operational when the switch was previously indicated as non-operational (Column 7 lines 30 – 45 of Latif disclose that during the LCT routine, if the primary Rx comes up from it's failed state, the NIC driver will perform logical operations to ascertain whether it is proper to re-assigned the receiving tasks to the primary Rx port. Thus according to the routine the status is checked and if it has returned from being non-operational it is cleared for data transfer).

As to Claim 13, Latif and Fung teach **the system of claim 9, wherein the adaptors are managed as a team and wherein load balancing operations are performed when transmitting data through the adaptors** (Column 2 lines 40 – 45 of Latif disclose providing a method for increasing throughput in a load balancing manner over a multi-port NIC).

As to Claim 15, Latif and Fung teach **the system of claim 9, wherein the circuitry for performing the operations of managing the transmissions of data, sending the at least one query and indicating not to transmit data to one adaptor is implemented as an intermediate device driver** (Column 4 lines 65 – 67 and Column 5 lines 1 – 10 of Latif disclose that the smart NIC driver is used to manage loads over the multi port NIC. Then in column 7 lines 35 – 40 of Latif it is disclosed that the smart NIC driver is set to perform a LCT routine which is used to check inactivity. Finally in

column 11 lines 5 – 20 of Latif it is disclosed that the PRT routine is also controlled by the smart NIC driver. Thus it is seen that the smart NIC driver describes is responsible for managing data transmission, querying the switches, and indicating not to transmit data)**, further comprising:**

at least one adaptor device driver in communication with the intermediate device driver managing communications to at least one adaptor (It is seen that because the smart NIC driver is also the adaptor device driver that it is in communication with itself and thus is seen to be the same as the applicant's invention)**.**

As to Claim 16, Latif and Fung teach **the system of claim 9, further comprising:**

a chassis, wherein the switches are implemented on printed circuit boards in the chassis (Figs. 1 and 2 of Fung disclose a system with individual servers and switches in a chassis)**; and**

a printed circuit board in the chassis on which the circuitry and adaptors are implemented (Figs. 1 and 2 of Fung disclose a system with individual servers and switches in a chassis)**.**

Examiner recites the same rationale to combine used in claim 7.

As to Claim 17, Latif and Fung teach **the system of claim 9, wherein the at least one query comprises an SNMP query of the external port link status** (Paragraph [0141] of Fung discloses a system where SNMP message are utilized for status reporting of switches)**.**

As to Claim 18, Latif and Fung teach **a system in communication with a network, comprising:**

(a) a chassis (Figs. 1 and 2 of Fung disclose a chassis)**;**

(b) a plurality of switch printed circuit boards capable of being inserted in the chassis (Figs. 1 and 2 of Fung disclose a rack mounted chassis with two switches)**;**

(c) a server printed circuit board capable of being inserted in the chassis (Figs. 1 and 2 of Fung disclose a rack mounted chassis with individual servers)**, and including:**

(i) a plurality of adaptors connected to the switch printed circuit boards (Fig. 2 of Latif discloses two multi-port NICs (network interface cards) each connected to a different network. Then in Fig. 3 it is disclosed that the multi-port NICs are connected to a switch which in turn connects them to their hosts. Thus the two multi-port NICs are read to be a plurality of adaptors connected to switches)**;**

(ii) circuitry capable of causing operations, the operations comprising:

(A) managing transmission of data through the adaptors (Column 5 lines 40 – 55 of Latif disclose a smart NIC driver that controls each port of the multi-port NIC. This is seen to be managing the transmission of data through the adaptors since the multiple ports on the NIC are seen to be independent instances of NICs)**;**

(B) sending through the adaptors at least one query to the switch printed circuit boards connected to the adaptor to determine a status of external ports in each queried switch communicating with the network (Column 13 lines 43 – 55 of Latif disclose an LCT (Link Check Timer) routine that is used to examine each port to ascertain whether it is active or inactive. Also in column 11 lines 1 – 20 of Latif it is disclosed that a PRT (Port Resolution Table) timer routine scans all indices of the table and the associated connected to hosts to see if they are or are not actively transmitting data. It is noted that Latif discloses this in reference to ports on the NICs and not the switches. However in Fung paragraph [0141] a management module for switch management is disclosed. This module is stated to be responsible for control and status reporting of the switches and it does so by utilizing SNMP. Thus although Latif does not

disclose querying to switches it is seen in Fung that such an idea existed and thus applying Latif's specific method to the status reporting disclosed in Fung would be obvious)**; and**

(C) in response to determining from the at least one query that no external ports are operational in one non-operational switch printed circuit board, then indicating not to transmit data to the adaptor connected to the non-operational switch printed circuit board (Column 14 lines 60 – 65 of Latif disclose that when port P1 fails for any reason, the smart NIC driver will look to the next active port and assign the functions to that port. Thus it is seen that when it is indicated that one port is inactive its responsibilities are given to another port and information is not sent through that port until it is active again)**.**

Examiner supplies the same rationale to combine the references used in claim 1 above .

As to Claim 19, Latif and Fung teach **the system of claim 18, wherein the server printed circuit board further includes:**

a switch map including information associating the adaptors with the switch to which the adaptors connect and a status of the external ports on the switches (Figure 7B of Latif discloses a Port Resolution Table (switch map) that contains port numbers

and destination addresses (read to be the adaptors and switches) and a timer field which indicates the status of the connections)**, wherein the operations performed by the circuitry are further capable of updating the status of the external ports to the status determined from the at least one query** (Column 11 lines 1 – 20 of Latif disclose that after the initial scan if the timer field is set to '1' it will be changed to '0' and then later it will again scan all indices and similarly update the timer field)**.**

As to Claim 20, Latif and Fung teach **an article of manufacture in communication with adaptors connected to switches, wherein the switches provide communication with a network, and wherein the article of manufacture is capable of causing operations to be performed, the operations, comprising:**

managing transmission of data through the adaptors connected to the switches (Fig. 2 of Latif discloses two multi-port NICs (network interface cards) each connected to a different network. Then in Fig. 3 it is disclosed that the multi-port NICs are connected to a switch which in turn connects them to their hosts. Thus the two multi-port NICs are read to be a plurality of adaptors connected to switches)**;**

Latif further teaches **sending through the adaptors at least one query to the switches connected to the adaptor to determine a status of external ports in each queried switch communicating with the network** (Column 13 lines 43 – 55 of Latif disclose an LCT (Link Check Timer) routine that is used to examine each port to ascertain whether it

is active or inactive. Also in column 11 lines 1 – 20 of Latif it is disclosed that a PRT (Port Resolution Table) timer routine scans all indices of the table and the associated connected to hosts to see if they are or are not actively transmitting data. It is noted that Latif discloses this in reference to ports on the NICs and not the switches as claimed.

However Fung teaches in paragraph [0141] a management module for switch management. This module is stated to be responsible for control and status reporting of the switches and it does so by utilizing SNMP. Thus although Latif does not disclose querying to switches it is seen in Fung that such an idea existed and thus applying Latif's specific method to the status reporting disclosed in Fung would be obvious)**; and**

in response to determining from the at least one query that no external ports are operational in one non-operational switch, then indicating not to transmit data to the adaptor connected to the non-operational switch (Column 14 lines 60 – 65 of Latif disclose that when port P1 fails for any reason, the smart NIC driver will look to the next active port and assign the functions to that port. Thus it is seen that when it is indicated that one port is inactive its responsibilities are given to another port and information is not sent through that port until it is active again)**.**

Examiner supplies the same rationale to combine the references used in claim 1 above .

As to Claim 21, Latif and Fung teach **the article of manufacture of claim 20, wherein the operations further comprise:**

maintaining a switch map including information associating the adaptors with the switch to which the adaptors connect and a status of the external ports on the switches (Figure 7B of Latif discloses a Port Resolution Table (switch map) that contains port numbers and destination addresses (read to be the adaptors and switches) and a timer field which indicates the status of the connections)**; and**

updating the status of the external ports to the status determined from the at least one query (Column 11 lines 1 – 20 of Latif disclose that after the initial scan if the timer field is set to '1' it will be changed to '0' and then later it will again scan all indices and similarly update the timer field)**.**

As to Claim 22, Latif and Fung teach **the article of manufacture of claim 20, wherein the operations further comprise:**

indicating to transmit data to one adaptor connected to one switch having at least one operational external port in response to determining from the at least one query that at least one external port in the switch is operational when the switch was previously indicated as non-operational (Column 7 lines 30 – 45 of Latif disclose that during the LCT routine, if the primary Rx comes up from it's failed state, the NIC driver will perform logical operations to ascertain whether it is proper to re-assigned the

receiving tasks to the primary Rx port. Thus according to the routine the status is checked and if it has returned from being non-operational it is cleared for data transfer).

As to Claim 24, Latif and Fung teach **the article of manufacture of claim 20, wherein the adaptors are managed as a team and wherein load balancing operations are performed when transmitting data through the adaptors** (Column 2 lines 40 – 45 of Latif disclose providing a method for increasing throughput in a load balancing manner over a multi-port NIC).

As to Claim 26, Latif and Fung teach **the article of manufacture of claim 20, wherein the operations are performed by an intermediate device driver in communication with adaptor device drivers** (Column 4 lines 65 – 67 and Column 5 lines 1 – 10 of Latif disclose that the smart NIC driver is used to manage loads over the multi port NIC. Then in column 7 lines 35 – 40 of Latif it is disclosed that the smart NIC driver is set to perform a LCT routine which is used to check inactivity. Finally in column 11 lines 5 – 20 of Latif it is disclosed that the PRT routine is also controlled by the smart NIC driver. Thus it is seen that the smart NIC driver describes is responsible for managing data transmission, querying the switches, and indicating not to transmit data. It is seen that because the smart NIC driver is also the adaptor device driver that it is in communication with itself and thus is seen to be the same as the applicant's invention).

As to Claim 27, Latif and Fung teach **the article of manufacture of claim 20, wherein the at least one query comprises an SNMP query of the external port link status** (Paragraph [0141] of Fung discloses a system where SNMP message are utilized for status reporting of switches)**.**

8. Claims 4, 6, 12, 14, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Latif and Fung as applied to claims 3, 9, and 22 above, and further in view of U.S. Pub. No. 2005/0058063 A1 to Masuyama et al. (hereinafter "Masuyama").

As to Claim 4, Latif and Fung teach **the method of claim 3, further comprising:**

Latif and Fung do not explicitly teach but Masuyama teaches **performing a failover to the switch that is operational from the switch that is non-operational in response to determining from the at least one query that one switch is non-operational** (Paragraph [0027] of Masuyama discloses when a switch detects link loss on uplink (read to be a non-operational switch) the fail-over circuit automatically disrupts the communications on the downlink to trigger fail-over to another switch)**; and**

performing a failback to the switch that is determined to have at least one operational external port when the switch was previously indicated as non-operational (Paragraph [0037] of Masuyama discloses that if the system is currently in

fail-over mode the fail-over switch detects whether or not the original uplink is still down. If the connection has been restored on the original uplink the original downlink is restored and returns the original switch to normal mode. Thus it is read that when the original switch is back up from being non-operational failback is performed to resume normal operation).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of claim 3 taught by Latif and Fung, with performing failover and failback as taught by Masuyama.

One of ordinary skill in the art at the time the invention was made would have been motivated to combine in order to provide the functionality Latif already teaches to NIC ports to further include switches. Latif teaches using failover/failback to its multi-port NICs and it would be obvious to extend this feature to the next step along the line as the switch is still part of the same system. "Common sense teaches, however, that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle...When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." See KSR v. Teleflex, 550 U.S. ___, 127 S. Ct. 1727 (2007).

As to Claim 6, Latif and Fung teach **the method of claim 1.** Latif and Fung do not explicitly teach but Masuyama teaches **wherein each adaptor is connected to a different switch to provide redundant paths to the network** (Paragraph [0023] of Masuyama discloses each server may include multiple NIDs (network interface device) for purposes such as fail-over, redundancy, and load-balancing. Further in figure 1 of Masuyama a server is shown with two NIDs connected to two separate switches which then connect to the same network)**.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of claim 1 taught by Latif and Fung, with providing redundant paths to the network as taught by Masuyama.

One of ordinary skill in the art at the time the invention was made would have been motivated to combine in order to provide the functionality Latif already teaches to NIC ports to further include switches. Latif teaches uses its multi-port NICs to provide redundancy to the switch and it would be obvious to extend this feature to the next step along the line as the switch is still part of the same system to simply further buffer the system for failure. "Common sense teaches, however, that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle...When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated

success, it is likely the product not of innovation but of ordinary skill and common sense." See KSR v. Teleflex, 550 U.S. ___, 127 S. Ct. 1727 (2007).

As to Claim 12, Latif and Fung teach **the system of claim 9, wherein the operations performed by the circuitry are further capable of:**

Latif and Fung do not explicitly teach but Masuyama teaches **performing a failover to the switch that is operational from the switch that is non-operational in response to determining from the at least one query that one switch is non-operational** (Paragraph [0027] of Masuyama discloses when a switch detects link loss on uplink (read to be a non-operational switch) the fail-over circuit automatically disrupts the communications on the downlink to trigger fail-over to another switch)**; and**

performing a failback to the switch that is determined to have at least one operational external port when the switch was previously indicated as non-operational (Paragraph [0037] of Masuyama discloses that if the system is currently in fail-over mode the fail-over switch detects whether or not the original uplink is still down. If the connection has been restored on the original uplink the original downlink is restored and returns the original switch to normal mode. Thus it is read that when the original switch is back up from being non-operational failback is performed to resume normal operation)**.**

Examiner supplies the same rationale to combine the references used in claim 4 above.

As to Claim 14, Latif and Fung teach **the system of claim 9.** Latif and Fung do not explicitly teach but Masuyama teaches **wherein each adaptor is connected to a different switch to provide redundant paths to the network** (Paragraph [0023] of Masuyama discloses each server may include multiple NIDs for purposes such as fail-over, redundancy, and load-balancing. Further in figure 1 of Masuyama a server is shown with two NIDs connected to two separate switches which then connect to the same network)**.**

Examiner supplies the same rationale to combine the references used in claim 6 above.

As to Claim 23, Latif and Fung teach **the article of manufacture of claim 22, wherein the operations further comprise:**

Latif and Fung do not explicitly teach but Masuyama teaches **performing a failover to the switch that is operational from the switch that is non-operational in response to determining from the at least one query that one switch is non-operational** (Paragraph [0027] of Masuyama discloses when a switch detects link loss on uplink (read to be a non-operational switch) the fail-over circuit automatically disrupts the communications on the downlink to trigger fail-over to another switch)**; and**

performing a failback to the switch that is determined to have at least one operational external port when the switch was previously indicated as non-operational (Paragraph [0037] of Masuyama discloses that if the system is currently in fail-over mode the fail-over switch detects whether or not the original uplink is still down. If the connection has been restored on the original uplink the original downlink is restored and returns the original switch to normal mode. Thus it is read that when the original switch is back up from being non-operational failback is performed to resume normal operation)**.**

Examiner supplies the same rationale to combine the references used in claim 4 above.

As to Claim 25, Latif and Fung teach **the article of manufacture of claim 20.** Latif and Fung do not explicitly teach but Masuyama teaches **wherein each adaptor is connected to a different switch to provide redundant paths to the network** (Paragraph [0023] of Masuyama discloses each server may include multiple NIDs for purposes such as fail-over, redundancy, and load-balancing. Further in figure 1 of Masuyama a server is shown with two NIDs connected to two separate switches which then connect to the same network)**.**

Examiner supplies the same rationale to combine the references used in claim 6 above .

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN S. MAI whose telephone number is (571)270-5001. The examiner can normally be reached on Monday through Friday 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Taghi Arani can be reached on 571-272-3787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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KSM

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12/17/2007